REMARKS

The application was originally filed with claims 1-6. In response to a first Office Action, claims 1 and 2 were canceled and new claims 7 and 8 added. In the current response, claim 5 has been canceled, and claims 3, 4, 6 and 7 have been amended. Accordingly, claims 3, 4 and 6-8 are pending and at issue.

Response to grammatical suggestions

Claims 3, 4 and 6 have been amended to remove the term "type" from the preamble, and the term 'coils' as been amended to recite 'coil.'

Response to 35 U.S.C. §103 rejection

Claims 3, 5 and 7-8 were rejected under 35 U.S.C. §103 as obvious over United States Patent 5,189,962 ("Iwamura") in view of United States Patent 4,120,486 ("Borlinghaus").

Claims 3 and 7 cannot be considered obvious over *Iwamura* in view of *Borlinghaus* as the combination of these referenced fails to teach or suggests all of the claimed limitations and, as such, a *prima facie* case of obviousness has not been established.[1]

More specifically, claim 3 as amended recites, *inter alia*, "a nonlinear characteristic spring having an elongate constant-diameter portion having a constant wire diameter; and a tapered portion formed continuously on each of both ends of the constant-diameter portion and having a spring wire diameter that gradually decreases as it is closer to an end portion of a spring wire in a region of active coils of the coil spring, the coil spring having a spring constant in which a smaller spring constant range corresponds to a smaller flexure range and a larger spring constant range corresponds to a larger flexure range."

Similarly, claim 7 as amended recites, *inter alia*, "the coil spring is formed by a nonlinear characteristic spring comprised of an elongate constant-diameter portion and

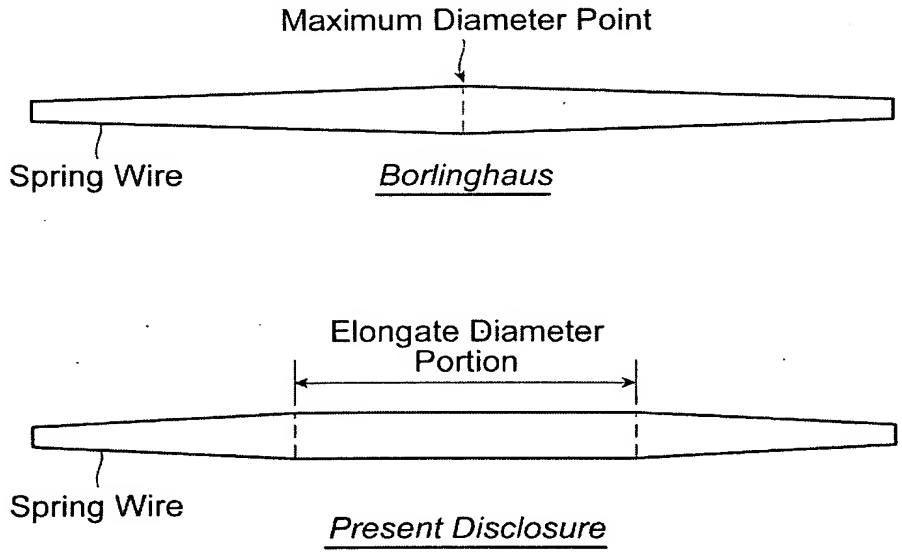
[1] "To establish a *prima facie* case of obviousness, ... there must be some suggestion or motivation ... to modify the references or to combine reference teachings ... [, and] the prior art reference (or references when combined) must teach or suggest 'all' the claimed limitations. (Internal quotations added). *See* MPEP § 2142.

tapered portions in a region of active coils of the coil spring, the elongate constant-diameter portion having a constant wire diameter, the tapered portions formed continuously with both ends of the constant-diameter portion and having a spring wire diameter that gradually decreases as it is closer to an end of a spring wire of the coil spring."

Iwamura and *Borlinghaus* alone or in combination fail to teach or suggest the claimed structure.

Iwamura discloses an axle box suspension system having an axle spring, but fails to disclose a specific structure for the axle spring.

Borlinghaus discloses a coil spring that includes a constant-diameter wire portion in the middle portion thereof as shown in Fig. 1. However, with reference to the cross-section of the spring of Figs. 2 and 4, the *Borlinghaus* spring has a wire diameter that is the largest at the middle. (Column 2, lines 56-66 and column 3, lines 56-60). As a result, the *Borlinghaus* spring has a maximum diameter portion at only one point, from which the wire diameter decreases toward each end portion thereof. In other words, the *Borlinghaus* spring does not include an elongate constant-diameter portion having a constant wire diameter as is recited in claims 3 and 7. The below sketch provides a graphical representation of the above discussed springs in an uncoiled extended state.



Additionally, the *Borlinghaus* spring has a larger coil diameter near the center of the spring (Fig. 1), which decreases towards the ends of the spring, thereby gradually decreasing

the spring constant of the *Borlinghaus* spring. In contrast, the gradual decrease of the wire diameter toward each end portion of the wire gradually increases the spring constant of the *Borlinghaus* spring. As a result, the effects of the coil configuration are counteracted by the wire configuration, which reduces the nonlinear characteristic of the coil spring. *Borlinghaus*, therefore, teaches away from the current disclosure.

Lastly, claim 7 additionally recites "the coil spring having a spring constant in which a smaller spring constant range corresponds to a smaller flexure range and a larger spring constant range corresponds to a larger flexure range and wherein the coil spring is configured such that a smaller range of a spring constant thereof corresponds to a range from an empty state to a common load state between the empty state and full passenger state of the vehicle." As such, the nonlinear characteristic of the primary spring is set to conform to the load state of the vehicle. This is not taught or suggested by *Borlinghaus* or *Iwamura*.

As a result, *Iwamura* and *Borlinghaus* alone or in combination do not teach or suggest all of the claimed limitations and, accordingly, a *prima facie* case of obviousness has not been established.

Claim 4 was rejected under 35 U.S.C. §103 as obvious over *Iwamura* in view of *Borlinghaus* further in view of the instant specification (page 3); and claim 6 was rejected under 35 U.S.C. §103 as obvious over *Iwamura* in view of *Borlinghaus* further in view of United States Patent 2,361,496 ("Pointer"). These rejections are moot in light of the above arguments and amendments.

Conclusion

As suggested by the examiner, applicants hereby remind the examiner to contact the applicants upon receiving the present response to discuss the current amendments and arguments, so as to place the application in condition for allowance.

In light of the foregoing, issuance of a notice of allowance is respectfully solicited.

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Respectfully submitted,

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